

ITEM DICHOTOMY WITHIN THE IRRATIONAL BELIEFS TEST

By

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Rational Emotive Therapy has been one of the more influential forms of psychotherapy to be developed in the last several decades. This therapy orientation assumes that excessive emotional distress is often due to the irrational beliefs people hold. An instrument, the Irrational Beliefs Test (IBT), was devised to operationalize and quantify ten of the irrational beliefs purported to be most common. Despite much acceptance of the IBT, there have been indications that it may actually be measuring self-reported emotional distress rather than irrational beliefs. It may therefore lack discriminant validity because of item contamination.

The purpose of this study was to examine the IBT's discriminant validity within the context of its item content. The entire test was divided into two groups of items, those containing the personal pronouns "I" and/or "me" (labeled "IBT-I subtest") and those not containing

these pronouns (labeled "IBT-B subtest"). The full IBT, a trait anxiety measure, a depression measure, and a measure of ability to discriminate rationality were administered to 127 college students. Ten hypotheses were then tested that examined the interrelationships among the four measures and subtest derivatives from the IBT. Principal findings were that the IBT-I and IBT-B subtests correlated poorly with each other and differentially with the emotional distress measures. Also, the IBT-I lacked discriminant validity. It had a high correlation with the emotional distress measures and a low correlation with the indices of ability to discriminate rationality. Thus it was concluded that the IBT-I items are construct contaminants within the IBT. Recommendations were made for further research.

CHAPTER I INTRODUCTION

The Irrational Beliefs Test (IBT; Jones, 1969) has been the most popular paper and pencil assessment instrument for the measurement of irrational beliefs. Even with the relatively recent introduction of a more parsimonious measure, the Rational Behavior Inventory (RBI; Shorkey & Whiteman, 1977), the IBT remains the primary experimental assessment device for the construct "irrational beliefs." This construct is in turn of central concern to Rational Emotive Therapy (RET; Ellis, 1962) and of related concern to the cognitive behavioral approaches to psychotherapy.

Part One: The Problem

The IBT is purported to measure irrational beliefs. Across the twenty-year history of the IBT there have been occasional doubts whether the IBT truly does measure this construct. Certain findings have been in opposition to the IBT's theoretical basis. For instance, the IBT has been found to correlate with some normal personality variables (Forman & Forman, 1979). Also, there has been a failure to clearly establish its association with direct physiological and behavioral measures of the emotional distress it has been claimed to predict (e.g., Smith, Houston, & Zurawski,

1984; Zemore & Elgaard, 1979; Evans & Pierce, 1984). Although the assumption is that the IBT measures irrational beliefs which, in turn, cause emotional distress, the suspicion has been cast that the IBT may measure emotional distress directly (Zemore & Elgaard, 1979). This suspicion, however, has not resulted in vigorous reexamination of the IBT's validity. Rather, the IBT has remained the primary operationalization of irrational beliefs and increasingly sophisticated research has proceeded predicated upon the assumption of its validity.

A few researchers have continued to question the test. Recent research has particularly questioned the IBT's discriminant validity, that is, its ability to discriminate irrational beliefs from other constructs. For example, in one study the IBT correlated more highly with a measure of trait anxiety than it did with another measure of irrationality (Smith, Houston, & Zurawski, 1984). Neither the IBT nor the trait anxiety measure, however, was capable of predicting a situation-specific anxiety as well as an instrument designed solely for that purpose. The conclusions were that the IBT may lack validity as a discriminating measure of irrationality and that it may have less practical utility than direct measures of emotional distress. If correct, these conclusions discredit the IBT both in its primary role as an operationalizer of irrationality and in its secondary role as a predictor of emotional distress. The ultimate effect

would be to remove a major source of support for therapies based on the theory that irrational beliefs mediate emotional distress.

There is, then, a reasonable possibility that the IBT lacks discriminant validity. The test could be predominantly a direct measure of general emotional distress. This dissertation is designed to investigate the possibility that the IBT is actually composed of two very different types of items. One type of items, 68% of the test, may measure emotional distress directly. The remaining type of item, 32% of the test, may be a measure, albeit a poor one, of irrational beliefs. For the purpose of this dissertation the IBT is compared with two contrived subtests labeled "IBT-I" and "IBT-B." These subtests isolate the sixty-four items which might relate to distress from the thirty-two items which might measure beliefs.

This dissertation investigates the IBT's construct and discriminant validities by a comparison of these three tests in their relation to two measures of emotional distress--trait anxiety and depression. Therefore, the main hypotheses to be tested are that (1) the two subtests are not as highly correlated as would be expected according to internal consistency predictions; (2) the IBT-I correlates as well with trait anxiety and depression as does the full IBT, and it correlates with these distress measures better than it does with the IBT-B. Additional hypotheses involve another contrived test, one of ability

to predict or discriminate the most rational responses to the IBT. It consists of the IBT items but differs in that the instructions are for subjects to predict what they believe the test constructor feels are the most rational and reasonable responses to the items. This test is herein referred to as the IBTD, which stands for Irrational Beliefs Test, Discrimination Version. It is likewise divided into two subtests, IBTD-I and IBTD-B, reflecting the same item content as the IBT-I and IBT-B. These secondary hypotheses, based on the IBTD, again test the similarity and difference between the two isolated components of the original IBT.

Need for the Study

IBT research has been proceeding despite indications that the IBT may not be a valid operationalization of the irrational beliefs construct. Research based on the IBT continues and may be accelerating, perhaps in part due to the current prominence of cognitive psychology and the emergence of cognitive behavioral approaches. Thus it is imperative that the issue of the IBT's validity be clarified. Given that the Rational Behavior Inventory has been accepted mostly on the basis of its concurrent validity with the IBT, the need is doubly evident. A clarification of the validity of the IBT would serve to establish the actual value of past, present and future IBT research. Several possibilities are evident. If the IBT does stand up to the present scrutiny then perhaps further

sophistication of IBT research can proceed less hampered by suspicions.

If the IBT is shown to clearly not be a valid measure of irrationality then this knowledge is vital in order to stop further misdirection of research efforts. If the IBT is composed of two separate item sets, one of which validly measures irrationality and one of which does not, then the knowledge of a valid subset of the IBT could form the basis of the construction of a new, valid, and reliable test. It is thus necessary that research pointedly examine the validity of the IBT. The IBT's construct validity currently rests rather weakly primarily on its creator's intuitive judgement. Given the strong suspicions that the IBT lacks discriminant validity, research directly testing that validity is merited.

Purpose of the Study

The purpose of this dissertation is to test the validity of the Irrational Beliefs Test by examining whether it is actually composed of two distinct types of items which measure essentially different constructs. A review of the IBT literature gave initial indications that the test may lack discriminant validity. These led to a close visual examination of the IBT items, which in turn led to the hypothesis that the IBT may be composed of two functionally different types of items. It was observed that, given this item distinction, subscales could be classified by type of item. This was possible due to the

item-type purity of the subscales. It was further observed that the preponderance of subscales reported in the literature as significantly correlating with various other measures were composed primarily of one type of item.

A pilot study was conducted to investigate the two item-types hypothesis with the result that the primary item-type (i.e., 62% of the test) correlated to a much greater degree than the other type of item with a measure of trait anxiety. The primary IBT item-type also correlated better with the trait anxiety measure than it did with the other IBT item-type. This was taken as an indication that item-type lacked discriminant validity. This dissertation is an attempt to replicate and extend the pilot study. It is an opportunity to further examine the IBT's item structure and discriminant validity. Specifically, this dissertation attempts to clarify what the IBT truly measures.

Significance of the Study

Rational Emotive Therapy and the cognitive behavioral approaches to therapy rest predominantly upon cognitive restructuring techniques. This technique, in turn, relies upon the assumption that cognitions cause emotions. Cognitions, especially in the form of irrational beliefs, have been targeted by RET as mediators of emotional distress. Evidence for this cause-effect relationship has come from two primary sources, RET treatment studies and RET correlational studies. The treatment studies have been

criticized for possibly failing to isolate the treatment (i.e. cognitive restructuring as distinct from behavioral treatments). Research studies, primarily correlational, have utilized the IBT or the RBI as operationalizations of the irrationality construct. The RBI's validation was in large part based on its concurrent correlation with the IBT. The IBT has also been used as a check on belief manipulations in RET and cognitive behavioral treatment studies.

For these reasons the issue of the IBT's discriminant validity, and ultimately its construct validity, is vital. The current dissertation directly questions that discriminant validity by testing whether the IBT is really composed of two distinct types of items. If most of the significant IBT correlations with measures of emotional distress are based on IBT items that measure distress directly, then a major false source of support for therapies based on belief mediation will have been exposed. This would ultimately facilitate research in this area by encouraging the development of alternative measures of cognitive constructs which have greater validity.

Organization of the Study

This dissertation is organized into five chapters. The first chapter is divided into three parts. Part One has introduced the problem and has stated the need, purpose and significance of the study. Part Two establishes the problem within the context of the major concepts involved. Part

Three reports a pilot study which was performed as a preliminary check on the reasonableness of the hypotheses. Chapter Two is a review of literature relevant to the current study. Chapter Three presents the research methodology. Chapter Four contains the results of the study. Chapter Five is a discussion of the results, the implications of the results, and recommended directions for future research.

Part Two: The Problem in the Context
of Rational Emotive Therapy

Rational Emotive Therapy has been a relatively influential force in psychotherapy theory and practice for three decades. It has maintained popularity and has contributed over the years to the development of the many forms of cognitive behavior therapy which currently abound. Exemplary among these are Cognitive Therapy (Beck, 1976) and Stress Inoculation Training (Meichenbaum, 1977).

Rational Emotive Therapy and the cognitive behavioral therapies are distinguished by their assertion that "mental illness is fundamentally a disorder of thinking by which the client consistently distorts reality in a self-defeating manner" (Pechaur, 1985, p. 180). Thus it is the client's own thoughts which cause emotional distress and various problematic behavioral patterns. According to Albert Ellis (Pechaur, 1985, p. 180), the founder of RET, "Human emotions and behavior are importantly affected (and even created) by cognitions. If for any reason the individual significantly changes his beliefs, attitudes,

and values, he will concomitantly change his emotional and behavioral reactions" (cited in Pecheur, 1985, p. 180). The explicit assumption is that thoughts mediate emotions and behavior. This assumption must be qualified slightly, however. It has been pointed out that Ellis does not conceptualize thought and emotion as two totally separate processes. Some of what is called emotion may actually just be thoughts with "natural physiological concomitants" (Sweney, 1985). Despite this qualification RET is generally understood to attribute emotional states to cognitions.

Both RET and the cognitive therapies in general allow that direct emotional reaction to events can occur due to instinct, reflexes, or conditioning. But the troublesome emotions and behaviors that constitute forms of prolonged emotional distress and behavioral difficulties in most instances are attributable to the interpretation of events. Interpretation intercedes in the event-reaction connection. It is the interpretation of the event that results in a specific reaction. For example, a grade of "C" on an important exam could be a source of either disappointment or satisfaction. The grade has no particular intrinsic meaning. The interpretation of the grade as good or bad, not the grade itself, is the actual event that generates a response. Rational Emotive and cognitive behavioral theorists agree on this point.

The causal relationship between cognitive interpretation and response which underlies these theories may further be understood in the context of a basic philosophical assumption which is often referred to as "reciprocal determinism" (Propst, 1985). Either implicitly or explicitly RET and the cognitive approaches share this underlying assumption. Reciprocal determinism maintains that continuous transactions occur between the person and the environment such that a mutual influence is maintained. In addition to the individual's reacting to and being influenced by the environment, the individual's reactions alter the environment in turn. For instance, if Person A is friendly yet for some reason Person B interprets that friendliness as manipulation, Person A may respond with anger. Person B may counterreact with anger. Person A has, in effect, altered the environment. Thus an individual's thoughts about the environment actually create to some extent the environment to which the individual responds. This latter point is much more explicit in enunciations of cognitive behavioral theory than it is in Rational Emotive Therapy. In both cases, however, there is some degree of recognition that interpretation of a situation affects both an individual's reactivity and the actual nature of the situation.

These assumptions are important bases for the final major assumption, that persons can learn to alter their interpretations of events. Alteration of individuals'

interpretations of events is the primary strategy employed by these therapies. The goal generally is to arrive at the most clearly rational and beneficial conceptualizations of events. Despite certain differences in how such reinterpretation is to be achieved, what other goals are to be pursued, and what other techniques are to be employed, Rational Emotive and the cognitive therapies share this central goal based on the same assumptions. The overriding emphasis is always to examine or reappraise one's beliefs and replace that which is irrational, illogical, faulty or maladaptive with rational, logical and more adaptive cognitions.

The therapeutic process of reappraisal and replacement of beliefs as performed in RET has been termed "rational disputation." Techniques derived from but differing somewhat from Ellis's method include "systematic rational restructuring" (Goldfried, Decenteceo, & Weinberg, 1974) and "cognitive restructuring" (Goldfried, & Goldfried, 1980). "Rational restructuring" and "cognitive restructuring" are terms frequently used generically in reference to the basic process without necessarily specifying a particular treatment package. Just as there are different methods of cognitive restructuring there are different opinions as to exactly what the targets should be.

Many theorists, particularly cognitive behaviorists, tend to draw quite rigorous distinctions between such constructs

as irrationality, illogicality, and faulty thinking processes. For the purpose of this dissertation only the construct "irrationality" is singled out for scrutiny, and only as it is operationalized in the IBT. Irrationality was chosen because it is the pivotal construct in RET, which in turn was seminal in the development of the cognitive therapies.

Irrationality

Ellis describes irrationality most generally as the tendency of an individual to define his desires as dire necessities (Ellis, 1975). Ellis fondly uses the term "musturbation" to characterize this tendency. For instance, the individual might believe: "I must be loved by everyone" or "I must be completely competent in all things." It is primarily demandingness and the extremeness of the individual's expectations that define irrationality. Such demands and high expectations are difficult or impossible to meet. Thus the person's satisfaction and adjustment are contingent upon conditions or events that are unlikely to occur and the person may therefore be considered irrational.

Conversely, Ellis has been noted to define as rational that which contributes to one's survival, maximizes pleasure, and allows one to establish and maintain intimacy within a social group (Brandsma, 1985). Maultsby (1975), another RET spokesperson, defines rational thought and behavior as being based on consensual reality and having a

life-enhancing function as well as either enabling goal achievement or preventing major personal or social conflict (Brandsma, 1985).

Operationalization of Irrationality

Ellis pressed beyond general definitions and criteria of irrationality. He described many specific beliefs that he considered essentially irrational. According to RET theory the emotional distress or maladjustment that a person suffers from may be due to misinterpretations of reality or unrealistic expectations based on one or more of these specific irrational beliefs. When Jones (1969) created a psychological test (i.e., the IBT) in an attempt to operationalize the irrational beliefs construct, he relied directly on Ellis's enumeration of specific irrational beliefs. Jones selected ten of the more prominent of these to form the basis of the IBT. One hundred items which intuitively seemed in agreement with the ten irrational beliefs were created by Jones and consensually agreed upon by a panel of judges.

Factor analysis was utilized in the final assignment of Jones's items into ten separate subscales corresponding to the ten irrational beliefs. The ten irrational beliefs which the IBT purports to measure are related to (1) demand for approval, (2) high self-expectations, (3) blame proneness, (4) frustration reactivity (catastrophizing), (5) emotional irresponsibility, (6) anxious overconcern,

(7) problem avoidance, (8) dependency, (9) helplessness because of past history, and (10) perfectionism.

Other tests have been devised to operationalize irrationality (or rationality, conversely); but, of these only the Rational Behavior Inventory (RBI; Shorkey & Whiteman, 1977) has been utilized in research to any significant extent. The RBI has 37 items with 11 subfactors which, as in the case of the IBT, correspond with Ellis's list of irrational beliefs. Thus both tests were designed to measure essentially the same set of irrational beliefs. The IBT was selected over the RBI for scrutiny in this dissertation because of its longer history and wider utilization in research. In effect, the IBT has been the primary objective operationalization of the irrationality construct.

Current Directions in IBT Research

Irrationality is a hypothetical construct upon which RET is primarily based. The IBT has been the most popular measurement device for this construct for a number of years. Correlations using the IBT have apparently been accepted as supportive evidence for RET by many IBT researchers and RET practitioners. Zemore & Elgaard (1979) assert that Albert Ellis, the founder and principal proponent of RET, has claimed support for his theory on the basis of the association between the IBT and measures of emotional distress. Support for RET based on the IBT has persisted over the years despite repeated questioning of

the IBT's validity and despite limitations of this support by the well-known principle that correlations only establish association not causation.

The literature is indicative of an implicit general acceptance both of the discriminant validity of the IBT and of associations between the IBT and various forms of emotional distress. Rather than thoroughly investigating the IBT's discriminant validity, recent trends have, conversely, included endeavors for a finer-grained subscale analysis of the IBT. Thus investigators are attempting to probe beyond simple IBT-distress correlations to discover which IBT subscales (i.e., which beliefs) correlate with which specific forms of emotional distress. These investigations have the potential of reaping advancement in both theory and practice of cognitive forms of psychotherapy. If reliable associations can be obtained between various subscale patterns and specific emotional and behavioral problems then therapists may reliably predict the troublesome belief patterns of clients on the basis of their symptoms and vice versa. This would facilitate and refine the targeting of specific irrational beliefs for intervention. Such precision would be a boon to RET by greatly strengthening its theoretical underpinnings and enhancing its practical value.

Appendix A presents a summary of research relating subscales to measures of various forms of emotional distress, maladaptive behaviors, undesirable personality

traits, etc. This table includes most of the studies reporting full subscale investigations. The involved researchers have typically, albeit cautiously, given descriptive interpretations of the belief patterns associated with particular symptoms. In most studies a particular symptom is viewed vis-a-vis each IBT subscale. For the subject sample whatever subscales correlate significantly with the symptom are singled out. These subscales comprise the subscale pattern that is reported as being associated with the particular symptom under scrutiny. This translates into an account of the irrational beliefs that underlie a particular symptom. Researchers have then compared their set of subscale findings with those from other studies for the same symptom. While belief patterns for particular symptoms have been reported, comparison of belief patterns across symptoms has been rare (for an exception see Zwemer & Deffenbacher, 1984). Formal meta-analyses of these subscale findings have not been reported. What researchers have generally done is to conduct fairly isolated studies.

Criticisms of Subscale Research

The purpose of subscale research has presumably been to establish the reliability of certain subscale patterns in their relation to particular symptoms. This endeavor is open to at least two major criticisms. First, as in any correlational group reasearch, the findings describe the group not necessarily the individuals that comprise the

group. While, for instance, four subscales may be correlated with trait anxiety for the group, it may easily be the case that few or even no particular individual shows the full subscale pattern. It is possible that only one or two of the subscales describe nearly all members of the group. The problems presented by analysis on the level of group data are interpretation limitations typical of all group research. Due to the great difficulty and expense involved in solving this problem, researchers often defer such challenges, at least until they are quite sure that the simpler group correlational (or group experimental) relationships have proven to be reliable and until many of the basic parameters have been explored. Partly because these latter conditions have not been met, this dissertation pragmatically utilizes group data.

The second criticism is that while researchers ostensibly are attempting to discover differential subscale patterns for various symptoms, paradoxically they have rarely compared their findings broadly across symptoms. When subscale patterns for different symptoms have been compared, it generally has been to differentiate between only two symptoms. It is thus possible that there are few or no group differences in subscale patterns for various symptoms contrary to the assumption implicit in this line of research. Similarly, on the level of individuals, it is possible that there are no significant subscale pattern differences for particular individuals

across symptoms (i.e., an individual might have essentially the same subscale pattern regardless of symptom).

If the failure to view subscale patterns broadly across symptoms were addressed, then the research conclusions might well be quite contrary to present trends. Thus it might be discovered that the same few subscales generally underlie nearly all symptoms. Also, if differential patterns do exist they may be understood alternatively as only very subtle deviations from one basic pattern. If this were the case then some subscales would be shown to be noncontributory and thus stimulate a reevaluation of the subscale composition of the IBT. The finding of a prototypical subscale pattern is of marked relevance to the ongoing issue of the IBT's discriminant validity. If only a few subscales are responsible for the preponderance of correlations with symptoms, then isolating these subscales would allow an analysis of the IBT's discriminant validity, with fewer confounding variables.

The Predominance of Certain Subscales

An initial examination of the studies reporting correlations between IBT subscales and various measures related to emotional distress patterns reveals several interesting tendencies (see Appendix A). It is readily apparent that certain subscales are mentioned within the literature much more frequently than others. Thus some subscales correlate with many of the reported measures whereas others rarely correlate. In fact, there is a clear

dichotomy. With a range of 1 to 16 mentions (being mentioned as clearly statistically significant) in the literature five of the ten subscales are mentioned from 10 to 16 times, representing 81% of the mentions. The other five subscales exhibit a range of only 1 to 4 mentions for 19% of the total number of mentions. Therefore, a core of IBT findings must rest predominantly upon the influence of five subscales. This is likely true for both subscale patterns and for the full-scale IBT. Considering that this informal analysis is based on most (i.e., not all) of the published studies, it is reasonable to hypothesize that only about half the IBT subscales are responsible for the reported correlations between full-scale IBT scores and the various measures of distress.

Given the likelihood that certain subscales carry disproportionate weight and given the accusations by some of a lack of discriminant validity for the IBT as a whole it is reasonable to scrutinize the contents of the correlating subscales. Such an analysis has apparently not been conducted. Researchers have not reported any analysis on the level of actual IBT items, with one notable exception. One recent study reexamined the factorial structure of the test (Lohr & Bonge, 1982). The result was that nine of the original ten factors were replicated. One factor, the frustration reactivity subscale (scale four), was not present in the reexamination. This, ironically,

has been one of the subscales most frequently cited as correlating with measures of distress. There were factor purity problems as well with the other subscales. The researchers demonstrate that redistributing certain items increases the IBT's reliability. They note, however, that the level of reliability achieved is still insufficient for clinical decision making which, it should be pointed out, is an ultimate purpose of this line of research. It is significant that nearly all of the subscale studies reported used, and continue to use, the original IBT. Additionally there have been no changes made in the IBT's content. The test still consists of the original 100 items which are divided into ten subscales of ten items each.

Suspensions Regarding the IBT's Discriminant Validity

Previous investigations have cast reasonable doubts upon the validity of the IBT. Specifically, its discriminant validity has been questioned. Discriminant validity is a central issue for the IBT. The IBT is not supposed to measure emotional distress directly. Rather, it is claimed to be a measure of irrationality. Irrationality is, in turn, the theorized cause of various emotional problems. Much support for the theory of the belief mediation of emotions is derived from studies which have assumed that the IBT does in fact measure irrationality. The IBT can only contribute to this theory if it does in fact measure irrationality and does not directly measure emotional distress. Evidence has

sporadically appeared for well over a decade to the effect that the IBT may directly tap emotional distress and thus lack discriminant validity. Nevertheless, the IBT and to an increasing extent, the RBI, continue to be widely employed for RET research.

If the IBT has discriminant validity it would be expected to correlate more highly with another measure of rationality than it does with a measure of a different construct. Conversely, if the IBT lacks discriminant validity it would be expected to correlate as well or better with a measure of a different construct than it does with another rationality measure. Some indication of this latter tendency has been noted (Smith, Houston, & Zurawski, 1984). Also notable is an example of the failure to extract two distinct factors when irrationality and anxiety measure items were pooled (Smith & Zurawski, 1983). The IBT does correlate moderately well with an abundance of constructs related in some way to emotional distress. Again the issue is what the correlations mean. The IBT may be a broad measure of irrational beliefs, broad enough to correlate with measures of many different types of distress. Alternatively, it may actually be a direct measure of emotional distress unrelated to beliefs.

One pair of investigators have astutely pointed to what may be the major source of difficulty with the IBT. The literature fails to reflect any attention to the observation by Zemore and Elgaard (1979) that previous

studies had not "excluded the possibility that the IBT predicts emotional upset, not because it measures the kinds of beliefs that predispose an individual towards emotional upset, but because many items on the IBT measure an individual's self-reports of emotional upset per se" (p.249). The investigators were observing that many of the IBT items directly ask about emotional upset in much the same manner as measures of emotional distress. With much the same item content between measures of the supposedly different constructs significant correlations would hardly be surprising.

Part Three: The Pilot Study

Looking within the IBT at actual items, particularly contrasting those belonging to highly reported subscales with those belonging to seldom reported subscales, one rather subtle difference in items is observable. The highly reported subscales consist predominantly of items that include direct references to the test taker, notably through the use of the personal pronouns "I" and "me." For example, "I feel little anxiety over unexpected dangers of future events" and "Frustrations don't upset me." The seldom reported subscales, in contrast, consist mostly of items with generalized reference. For instance, "Those who do wrong deserve to be blamed" or "We live in a world of chance and probability" (Jones, 1969). Many of the personal reference items ("I") bear a striking resemblance to items on popular measures of emotional distress.

Noting the tendencies for certain subscales to be mentioned more often than other subscales as correlating with measures of emotional distress and what appears to be differential composition of subscales, a pilot study was conducted. The 100-item IBT was divided into two separate components using the inclusion or exclusion of the terms "I" or "me" in items as the sole criterion. What might be labeled the "IBT-I" consisted of the 62 items containing the personal referents "I" or "me." The remaining items were considered part of the component labeled the "IBT-B." The working hypotheses were (1) the IBT-I would correlate with the STAI-T significantly more highly than would the IBT-B; (2) the IBT-I would account for most of the variance in STAI-T to the extent that the IBT-B would be shown to be non-contributory; (3) the IBT-I would correlate more highly with the STAI-T than with the IBT-B (i.e., a test of discriminant validity); (4) the IBT subscales correlating most highly with the STAI-T would consist predominantly of IBT-I items; (5) the IBT subscales correlating most poorly with the STAI-T would consist predominantly of IBT-B items; and (6) the majority of the subscales reported in the IBT literature as correlating significantly with various measures associated with emotional distress would be shown to consist predominantly of IBT-I items.

IBT, STAI-T and other data had previously been collected in conjunction with a separate study (Gitlin & Tucker, 1987). That study was concerned with the

relationship between irrationality, anxiety, and the ability to discriminate rational responses to the IBT. The major findings were that although there was a significant correlation between irrationality and poorer ability to discriminate rationality, discrimination ability accounted for only a small amount of the variance in irrationality scores. Also discrimination ability was found unrelated to anxiety. The subjects were 155 students enrolled in personal growth psychology classes. The data from 80 of these subjects were randomly selected for use in the pilot study. Selection and analysis of the data were completed only after the hypotheses, as enunciated, were drafted.

Results Related to the Hypotheses of the Pilot Study

Results supported the hypotheses in each case. The IBT-I correlation with STAI-T for this sample was $r = .57$ ($p < .0001$) but the IBT-B correlation with the STAI-T was only $r = .29$, ($p < .0092$). A statistical test was not performed but the difference in total STAI-T variance accounted for by the IBT-I and IBT-B (i.e. 32% and 8%, respectively) was considerable. The full IBT correlated $r = .56$ with the STAI-T. Therefore, the IBT-I with a correlation of $r = .57$ was as highly correlated with the STAI-T as the full IBT. Furthermore, the evidence was decidedly against the IBT-I's having discriminant validity. The IBT-I correlated $r = .57$ with the STAI-T but much less, $r = .35$ ($p < .0014$), with the IBT-B. Rather

than the IBT-I's correlating highly, as it should, with another measure of irrationality (IBT-B) the actual correlation was low, much lower than its correlation with the anxiety measure.

The hypotheses involving subscale analysis were equally well supported. The subscales and their IBT-I composition are s1 (100%), s2 (100%), s3 (30%), s4 (90%), s5 (10%), s6 (100%), s7 (70%), s8 (80%), s9 (30%), s10 (10%). These subscales were arbitrarily divided at the fiftieth percentile into predominantly IBT-I versus predominantly IBT-B. Subscales s1, s2, s4, s6, s7, and s8 were designated "IBT-I" subscales. They range from 70% to 100% "I" content and include 88% of all IBT-I items. Subscales s3, s5, s9, and s10 were designated "IBT-B" subscales. They ranged from 70% to 90% pure "B" content and included 84% of all IBT-B items.

Subscale correlations with the STAI-T ranged from $r = -.01$ to $r = .46$. Subscales were designated as high correlation or low correlation. High correlation subscales were defined as those of the magnitude $r = .32$ and up. Low correlation subscales were defined as those of magnitude $r = .31$ or less. This division allowed a gap of .16 between the high and low correlation subscale groups which was greater than the range found within either group (.13 and .14, respectively). This was a decisive division. Six subscales, s1, s2, s4, s6, s7, and s9, fell into the high correlation group. Only one of these was an

IBT-B subscale. Four subscales, s3, s5, s8, s10, fell into the low correlation group. Similarly, only one of these was an IBT-I subscale. Thus for this data both subscale hypotheses were strongly supported. The IBT subscales correlating most highly with the STAI-T consisted predominantly of IBT-I items and the IBT subscales correlating most poorly with the STAI-T consisted predominantly of IBT-B items.

Nearly all the studies reporting subscale correlations were located and examined (see Appendix A). Within the 17 studies examined there were approximately 79 discrete instances or mentions of individual subscales correlating significantly with the various indices employed. Sixty-seven of the mentions were of subscales designatable by the above criteria as IBT-I subscales. This was 85% of the mentions. Only twelve, or 15%, of the mentions were for IBT-B subscales. By chance alone the proportion should have been 60% to 40% since there are six IBT-I subscales. The discrepancy between IBT-I and IBT-B subscale correlations with the various measures was striking. Only two or three studies were not included in this informal descriptive analysis.

Post Hoc Analyses of the Pilot Study

Certain post hoc analyses of the pilot study data were also performed to further clarify the phenomenon. To that purpose the discrimination ability scores of the subjects were entered into the analyses. Rational Emotive Therapy

states that irrational beliefs cause emotional distress. Rational Emotive Therapy emphasizes teaching clients to recognize their irrational beliefs (a process herein labeled "discrimination training") and replace them with more rational ones. Given this emphasis, it could be inferred that relatively less irrational persons should have better ability to discriminate irrationality than more irrational persons. Therefore, lower IBT scores (less irrationality) should be associated with lower IBTD scores (better discrimination ability) if it can be assumed that each test measures what it is supposed to measure.

As previously noted, this relationship was found to be of statistical but not practical significance (Gitlin & Tucker, 1987). The correlation based on the pilot study sample was $r = .18$ ($p < .11$), and thus not significant. Discrimination ability scores were further subdivided into those based on IBT-I items only, designated "IBTD-I," and those based on IBT-B items only, designated "IBTD-B." The correlation between the IBT and the IBTD-I discrimination ability measure was not significant ($r = .13$, $p < .24$). However, the correlation between the IBT and the IBT-B was significant ($r = .21$, $p < .05$), although just barely so. Thus discrimination ability judged by "I" items was not related to irrationality contrary to RET theory (inferred) but discrimination ability judged by "B" items was consistent with RET theory.

This indicates that as a predictor of rationality, failure to discriminate "B" items is important whereas failure to discriminate "I" items is unrelated. This line of analysis also indicated that the IBT-I beliefs test was unrelated to the IBTD-I discrimination ability test ($r = .08$, $p < .45$). In contrast, the IBT-B beliefs test correlated well with the IBTD-B discrimination ability test ($r = .52$, $p < .0001$). Again the "I" correlations are inconsistent, but the "B" correlations consistent, with RET theory. Finally, it was also discovered that ability to discriminate based on "I" items correlated only moderately with the same ability based on "B" items ($r = .56$, $p < .0001$). The correlation expected by internal consistency calculations might be expected to be much higher.

Pilot Study Conclusion

In summary, considerable evidence was amassed to the effect that the IBT is functionally two separate tests under the guise of a single measure. The IBT most likely measures two distinct constructs. The IBT-I was shown to lack discriminant validity by its low correlation with the IBT-B. Its high correlation with the STAI-T would tend to associate it with measures of anxiety. This would be consistent with the studies finding questionable discriminant validity for the IBT and suspicion that it is simply another measure of emotional distress rather than one of irrational beliefs. It would also explain why the

IBT tends to correlate with so many different forms of emotional distress and tends to correlate roughly to similar magnitudes with each. This might be expected if the IBT measured emotional distress in general, a global factor underlying anxieties, depression, maladjustment and so forth. If the IBT-I were not a measure of irrationality then the failure to find the theory-generated relationships with the IBTD and IBTD-I discrimination ability measures would be understandable.

The IBT-B far outstrips the IBT-I in face validity. It may be the component that measures the irrational beliefs construct if either component measures irrational beliefs at all. The IBT-B displayed discriminant validity. It also was associated with discrimination ability for the full IBTD ($\underline{r} = .31$, $p < .005$) and especially with discrimination ability based on the "B" items (IBTD-B; $\underline{r} = .52$, $p < .0001$). These findings were judged consistent with RET theory. The IBT-B correlation with the STAI-T was statistically significant ($\underline{r} = .29$, $p < .0092$) but by accounting for only 8% of the variance in anxiety scores its practical significance was nil.

The major conclusion from the literature analysis and the pilot study is that the IBT is not a pure measure of the construct "irrational beliefs." It is likely an amalgam of two tests, the IBT-I and IBT-B, each measuring separate constructs. There is evidence that the IBT-I (62% of the IBT) measures emotional distress directly.

There is also evidence that the IBT-B may indeed measure beliefs. Whether they are irrational beliefs or merely beliefs remains unknown. The IBT-B, in any case, proved only a poor predictor of trait anxiety.

Chapter Summary

A significant source of evidence for therapies, such as Rational Emotive Therapy, which are based on the assumption that irrational beliefs cause emotional distress, is research utilizing the Irrational Beliefs Test. There has been an implicit general assumption that the IBT is a valid operationalization of the concept, "irrational beliefs." Evidence from certain studies, from an informal meta-analysis of the IBT literature as a whole, and from a pilot study give strong indications that this assumption of validity may be unjustified. The purpose of this dissertation is to examine the IBT's validity. The study questions the IBT's validity by postulating and testing for the existence of two distinct IBT item-types which differentially correlate with various measures, such as the full IBT, ability to discriminate rational responses to the IBT, and measures of two forms of emotional distress. Before proceeding to a complete description of the methodology in Chapter III a literature review is presented in Chapter II.

Chapter II LITERATURE REVIEW

The general RET viewpoint is that emotional distress and maladaptive behavior are the results of irrational beliefs. The theory clearly specifies the relationship as causal. Beliefs, rational or irrational, mediate between events and the emotional responses to those events. Irrational beliefs are a cause of emotional distress and maladaptive behavior. The assertion of causation has been difficult to prove. Various forms of research evidence have been asserted in the attempt to relate irrational beliefs to personality factors, maladaptive behaviors, and emotional distress. The IBT has been the key operationalization of irrational beliefs for many of the involved studies. This chapter summarizes the literature ultimately relevant to the use of the IBT as it relates to the causation issue.

Case Studies as Evidence

Case studies have been advanced innumerable times in support of the belief mediation theory. Case studies involving examples of the use of RET in the treatment of all kinds of emotional and behavioral difficulties have abounded (Ellis, 1962; Ellis & Harper, 1975; Ellis & Grieger, 1977). Rational Emotive Therapy has been repeatedly claimed effective on this basis. Successful

treatments have been used as evidence that the basic theory is correct. Such claims have met with methodological criticism typical of other therapies (e.g., psychoanalysis) which have utilized case studies as evidence. The traditional criticism is that given an absence of experimental controls no causal statements are justified. In the endeavor to prove that irrational beliefs cause emotional distress such experimental control is difficult to attain.

Experimental Designs and the Role of the IBT

Clinical studies utilizing experimental and quasi-experimental designs have frequently been attempted. The same criticism leveled at cognitive behavioral experimentation, however, is relevant to RET experimentation. That is, it is difficult to isolate the cognitive part, or rational restructuring part, of the treatment from other influences (Beidel & Turner, 1986). The conception of RET as a unitary variable (i.e., cognitive restructuring) belies the possibility that many other variables may remain uncontrolled. For instance, the therapist may spend much time with restructuring activities and only a few moments on a homework assignment asking the client to practice disputing irrational beliefs in the context of some feared stimulus (e.g., taking a test). Yet the observed reduction in anxiety might not be due to the cognitive restructuring but, alternatively, could be due to the behavioral concept of counterconditioning or to a

combination of the two (Beidel & Turner, 1986). Thus RET may be shown effective in producing the desired effect, yet the theory would remain essentially unsupported because of the failure to isolate the specific variables postulated to be producing the effect.

A related difficulty with RET experimentation lies in the need to operationalize irrationality. Without a reliable method of assessing degree of irrationality the therapist or researcher cannot be sure that rational restructuring has any effect on clients. Because the therapist or researcher cannot determine whether there is indeed a change in the client's irrationality he or she in turn cannot know whether change in level of irrationality is related to observed changes in symptoms. The IBT was developed specifically in response to this need to operationalize the construct "irrationality." The IBT revolutionized RET research but did not solve all the problems associated with that research, especially that of isolating the treatment variable, as described above. Nevertheless, with the operationalization of irrationality experimenters could at least determine if the treatment, whatever it really was, was effective in reducing the client's degree of irrationality.

The same difficulty isolating the treatment variable, beliefs restructuring, is encountered in isolating the irrationality variable. Belief restructuring, once isolated, may have effects on other than just the client's

irrationality level. For this reason direct experimental manipulation of level of irrationality has been deemed necessary in order to conclusively demonstrate a causal relationship (Smith, Houston, & Zurawski, 1984). Experimentally isolating the beliefs restructuring and irrationality variables has proven quite difficult.

Many studies have been conducted in the interest of determining whether irrational beliefs are a cause of emotional distress. Because of the difficulties with experimental control most of the studies performed have been correlational. Both experimental and the more frequently encountered correlational studies of the relationship between irrationality and various forms of emotional distress have come to depend in large part on irrationality as operationalized by the IBT and to a lesser degree as operationalized by the Rational Behavior Inventory.

The RBI, notably, has found concurrent validity largely due to its correlation-based cross-validation with the IBT (Ray & Bak, 1980). For this reason it is doubly vital that there be no question that the IBT actually is a valid and reliable operationalization of irrationality. Without valid and reliable operationalization of the irrationality construct by the IBT the theoretical support for RET, specifically, and therapies in general which are based on belief mediation of emotional distress would be severely weakened. The IBT literature relating the

irrational beliefs to emotional distress rests in the context of these methodological issues.

Correlational Studies Employing the IBT

A computerized search of the Psycinfo Database revealed fifty-five studies utilizing the IBT from its inception to the present time (1968 through 1986). The preponderance of these studies have been correlational although a few factor analytic and experimental designs have been employed. The correlations in most cases have been between the IBT and various measures of emotional distress, maladaptive behavior, or undesirable personality traits. Notable exceptions include correlations of the IBT with other experimental measures of irrationality. Again, the overriding concern has been the issue of whether irrational beliefs produce negative emotional and behavioral consequences and, if so, which beliefs result in which forms of undesirable consequences. Although causal statements cannot be validly obtained in correlational studies, the observed associations, or lack thereof, are invariably cited as either supporting or contradicting the basic theory. Mostly, the literature supports associations between the IBT and a vast array of undesirable states, traits and behaviors.

A study of the relationship of irrationality to either depression or various forms of anxiety has been the major component of many separate studies. Most of these studies show significant correlations between overall IBT scores

and whatever anxiety or depression measures were employed. Correlations with the State-Trait Anxiety Inventory (Trait Form; STAI-T) have ranged from $r = .49$ to $r = .70$ (Lohr & Bonge, 1981; Smith & Zurawski, 1983; Smith, Houston, & Zurawski, 1983; Gitlin & Tucker, 1987; Zwemer & Deffenbacher, 1984).

Social anxieties have been measured by the Personal Report of Confidence as a Speaker Scale (PRCS; Paul, 1966), Personal Report of Public Speaking Anxiety (PRPSA; McCroskey, 1970) and the Social Avoidance and Distress Scale (SAD; Watson & Friend, 1969). Speaking anxiety was found to range from non-correlation with the IBT (Lohr & Rea, 1981) to $r = .54$ (Goldfried & Sobocinski, 1975). IBT correlations with the SAD have also ranged around $r = .50$ (Goldfried & Sobocinski, 1975; Davison, Feldman, & Osborn, 1984; Sutton-Simon & Goldfried, 1979). The relationship of the IBT to the Fear of Negative Evaluation (FNE; Watson & Friend, 1969) scale has been shown to be strong with correlations ranging from $r = .50$ (Smith, Houston, & Zurawski, 1984) to $r = .79$ (Davison, Feldman, & Osborn, 1984). Depressed persons as indicated by the Beck Depression Inventory have been found to score significantly more irrational on the IBT (LaPointe & Crandell, 1980). One study reported a correlation of $r = .53$ ($p < .001$) between the IBT and the BDI (Nelson, 1977).

Coronary prone behavior as generally measured by the Framingham Type A Scale has also been found to be

significantly correlated with various subscales of the IBT in several instances (Smith, Houston, & Zurawski, 1983; Thurman, 1983; Smith & Brehm, 1981) but not all instances (Lohr & Bonge, 1980). One study defined a group of poor copers as highly stressed and depressed as measured by the BDI and Life Experiences Survey (Sarason, Johnson, & Siegel, 1978). That group endorsed several subscales of the IBT significantly more strongly than an efficiently coping group (Schill, Adams, & Ramanaiah, 1982). Among prison inmates, three MMPI measures of maladjustment including ego strength, an index of psychopathology and an index of social maladjustment were each significantly related to several IBT subscales (Evans & Picano, 1984).

Anger, as measured by the Anger Inventory (AI; Novaco, 1975) has been found to relate significantly with two IBT subscales (Hazaleus & Deffenbacher, 1985) and with the full-scale IBT score ($r = .54$; Zwemer & Deffenbacher, 1984). Assertiveness has also been contrasted. One study found scores on the College Self-Expression Scale (Galassi, Delo, Galassi, & Bastien, 1974) to be associated with total IBT and three subscale scores (Lohr & Bonge, 1982). Another study, however, found the IBT unrelated to self-reported assertion but role-play measures of assertion did relate to total IBT and two subscales (Lohr, Nix, Dunbar, & Mosesso, 1984). Finally, the IBT has been significantly correlated (Heppner, Reeder, & Larson, 1983) with lower problem-solving scores on the Problem Solving

Inventory (PSI; Hepner & Petersen, 1982), higher noradrenaline levels (Kirk & Spillane, 1984), lower self-acceptance and greater number of problems reported (Smith, 1982), higher incidence of psychosomatic illness (Woods, 1984), and lower self-esteem (Daly & Burton, 1983).

Difficulties with the Correlational Findings

Correlational studies investigating associations between the IBT and measures of emotional distress, undesirable personality traits, and undesirable behaviors, have been overwhelmingly supportive of these associations. The few published findings cited which do not offer clearly supportive correlations (Lohr & Rea, 1981; Lohr & Bonge, 1980; Lohr, Nix, Dunbar, & Mosesso, 1984) are markedly offset by the weight of the evidence. The IBT literature is replete with studies reiterating the same conclusion, that the association found between the IBT and the particular emotion or behavior variable under scrutiny offers further support for the theory that specific beliefs cause specific emotions.

Despite strong correlational evidence there are consistent undercurrent indications that the evidence actually proves little. Researchers may be correct when they conclude that the correlations they have found support the belief mediation theory. An association between the involved variables should be demonstrable when causation is hypothesized. However, causation is much more than mere

association. The basic principle that evidence of association does not constitute evidence of causality remains unchallengeable.

The wealth of correlational findings thus far amassed has been theory driven. Irrational beliefs have been vis-a-vis emotional distress when possible because the theory says these two classes of variables should be related. Understandably, the literature includes few attempts to relate irrational beliefs measured via the IBT with non-distress variables since non-distress variables, being non-problematic, are not forced upon theorists' and therapists' attention. If the IBT were to be found to correlate with a number of non-pathology variables then IBT irrationality would be predictive of variables which may be inconsistent with the beliefs mediation theory. The literature does include two studies in which the IBT is contrasted with an instrument not expressly limited to measurement of specific forms of emotional distress (Forman & Forman, 1978; 1979). These studies employ the Adjective Check List (ACL; Gough & Heilbrun, 1965). The involved researchers reached two major conclusions upon finding that the IBT and many of its subscales significantly correlate with nonpathological personality characteristics and a multitude of psychological needs. The first was that "a large proportion of the variance in belief irrationality is explained by normal personality functioning" (Forman &

Forman, 1979, p.637). The second was that, irrational beliefs could not be used readily to predict pathological behavior (Forman & Forman, 1979).

Lack of Clear Correlations with Actual Behavior

Most of the correlational findings thus cited involved only self-report measures. The dependent variables were not forms of emotional distress per se but self-reports of such distress. Self-report measures are inevitably open to criticism on reliability and validity grounds. In contrast to the majority of studies, a few have involved attempts at measurement of actual behaviors indicative of distress, or maladaptivity. These studies demonstrate an ambiguity of findings at the very least. Kirk & Spillane (1984) found the IBT significantly correlated with noradrenaline levels which could be (but not necessarily should be) interpreted as indicative of higher stress. One study manipulated stress level and utilized both self-report of anxiety, cognitive measures (e.g., thought listing), and pulse measures (Smith, Houston, & Zurawski, 1984). Subjects scoring high on two of three IBT subscales studied were more "cognitively preoccupied" than low scorers on these two subscales. However, neither state anxiety nor the physiological measures displayed differences between the two groups. More importantly, there were no significant effects based on full-scale IBT scores.

Similarly ambiguous are reports that endorsement of irrational beliefs was associated with negative

self-statements in some studies (Harrell, Chambless, & Calhoun, 1981, as reported in Smith, Houston, & Zurawski, 1984) and was not associated with articulated thoughts in others (Davison, Feldman, & Osborn, 1984). Another study which included measures of actual behaviors involved a manipulation of emotional upset (Zemore & Elgaard, 1979). The experimenters arranged so that all subjects would fail at a task. This successfully increased emotional upset. There were no differences between high and low IBT groups on self-reported anxiety or depression or on a coding performance task. Also, contrary to the experimenters' expectations, the high IBT group was significantly better on an anagrams task. These results led the investigators to seriously question the validity of the IBT. Finally, the IBT and several of its subscales correlated with three MMPI indices of maladjustment for a group of prison inmates (Evans & Picano, 1984). Conversely, the IBT was found unrelated in that study to such criminal behavior measures as severity of offenses, history of violence, number of prior arrests, security designation, and so on.

Summary of Weaknesses of IBT Correlational Studies

In summary thus far, there exist an abundance of studies correlating the IBT with self-report measures of various forms of emotional distress and maladaptive behavior. There is a dearth, however, of studies of the IBT with indices of nonpathological variables. Thus whether the IBT correlates only with self-reported distress

or also with a variety of contradicting measures remains largely unknown.

There are a couple of indications, as cited, that the IBT correlates with some common nonpathological needs and normal personality variables. The findings are even more ambiguous and conclusions more tentative when investigations have roamed outside of self-report measurement. Actual physiological and behavioral measures taken under both free and experimentally manipulated conditions do not uniformly support an association with IBT-determined irrationality. Thus the most popular measure of irrationality, the IBT, fails to unequivocally affirm even an association with observable indicators of undesirable emotions or behaviors. Such an important lack of association leaves the weight of the evidence far from establishing a cause-effect relationship.

The IBT's Possible Lack of Discriminative Validity and Predictive Utility

One possible explanation for the ambiguity of findings in the literature is that the IBT does not really measure irrationality. Most investigators have assumed that the IBT measures what it purports to measure. Some investigators, however, have voiced their doubts that the IBT is actually a good measure of irrational beliefs, if indeed it is a measure of irrationality at all. Such a concern is of central relevance. The IBT is the primary operationalization of the concept of irrational beliefs. If the IBT does not validly and reliably measure

irrationality, then most of the line of research utilizing the IBT has misdirected conclusions. Rational Behavior Inventory research which is in part predicated upon its concurrent validity with the IBT would also be implicated.

If current measures of irrationality are not valid then RET claims of beliefs mediating distress would rest heavily or solely on RET practitioners' judgements of what constitute irrational beliefs. As noted, most of the experimental evidence for RET involves treatment studies. These studies, as noted, are inherently weak because of a lack of evidence that the treatment, manipulation of beliefs, has been isolated from other treatments, and from the fact that irrationality is not uniformly operationalized across studies.

The IBT has been particularly vulnerable to criticisms that it lacks both distinctive utility and discriminant validity. One study in the IBT literature particularly stands out due to its sophistication and complexity relative to many IBT studies. That investigation is reported in some detail here due to its relevance to the current endeavor. Smith, Houston, & Zurawski (1984) studied the association between endorsement of irrational beliefs as measured by the IBT and subjective, physiological, and cognitive indices of emotional distress in response to an experimentally manipulated stressful event. They focused their attention on several IBT construct validity issues not previously addressed clearly

in the literature. The use of a mock evaluation of the individual subjects created a stressful situation which was desired so as to increase the external validity of the findings. In addition to the use of full scale IBT scores, specific irrational belief subscales were preselected for comparison. Two subscales were chosen for their hypothesized relevance to the evaluation situation and one was chosen for contrast based on the experimenter's belief that it had no specific relevance to an evaluation situation.

Smith, Houston, & Zurawski (1984) tested hypotheses concerning the relationship of relevant versus nonrelevant subscale beliefs to full-scale IBT scores in their association with the arousal of state anxiety. Also the predictive utility of the IBT and its subscales was pitted against "more parsimonious and/or better established constructs such as trait anxiety" (p. 192). The researchers found only limited support for the relevant IBT subscales. These two subscales correlated with only one of several indices of emotional distress. In fact, that index was "cognitive preoccupation" which as an indicator of state anxiety (a feeling) probably begs the question of beliefs' mediating emotions. One of the two subscales was associated with greater self-denigration, a variable also of unclear relation to emotional distress. Thus while there was support for the hypothesis that the two relevant-appearing subscales were more associated with

emotional distress than was the nonrelevant subscale this was based only on relationships with cognitive preoccupation and self-denigrations, both of which probably beg the question. Again, no effects were found relating the relevant beliefs to the state anxiety or expressly physiological measures.

The overall IBT score was not related to emotional distress in Smith, Houston, & Zurawski's (1984) study and thus was patently less predictive than the two relevant subscales. The IBT was also compared with the FNE and the STAI-T. The FNE was considered a measure of situation-specific trait anxiety in contrast to the STAI-T which was considered a measure of general trait anxiety. Results were that the IBT and the STAI-T were about equally non-predictive of emotional distress but the situation-specific measure, the FNE, did relate to emotional distress.

The essence of Smith, Houston, & Zurawki's (1984) findings was that the STAI-T and the full-scale IBT were measures too general in scope to predict emotional distress in a highly specific situation. Conversely, the FNE as a highly situation-specific trait anxiety measure was able to predict the situation-specific state anxiety. Thus a test of fear of evaluation was able to predict evaluation anxiety better than tests of either general anxiety or general irrationality. Using the greater specificity allowed by selection of specific relevant subscales of the

IBT was superior to employing the IBT as a whole but still not as good as using the highly targeted FNE. The investigators conclude that the construct validity of the IBT is questionable and that the IBT lacks the predictive utility of the more parsimonious FNE.

Two of the same principal investigators also pointedly questioned the discriminant validity of the IBT in a separate study (Smith & Zurawski, 1983). The IBT and RBI were chosen as measures of irrationality and the FNE, STAI-T, and TAI were selected as measures of anxiety in a simple correlational study. A measure of cognitive and somatic trait anxiety, the CTAS/STAS (Schwartz, Davison, & Coleman, 1978), was also used so as to provide differential analysis of anxiety into cognitive and somatic forms. Discriminant validity required that the IBT correlate more highly with another measure of irrationality than with measures of other constructs, in this case anxiety.

Only limited evidence of the IBT's discriminant validity was obtained because the IBT correlated more highly with the FNE and the CTAS/STAS than it did with the RBI. The RBI merited discriminant validity, however, because it correlated sufficiently more highly with the IBT than with the anxiety measures. Parenthetically, both the IBT and the RBI correlated more highly with cognitive than somatic self-reports of anxiety. This study also included subjecting all the measures, belief and anxiety, to factor analysis. Support for discriminant validity required that

at least two principal factors be extracted. Only one factor actually emerged. It accounted for 59% of the raw score variance. The researchers concluded that the IBT may be a cognitive trait anxiety measure rather than a irrational beliefs measure. They also cautioned against premature assumption of discriminant validity for the RBI.

Chapter Summary

Rational Emotive Therapy and other approaches which assume that irrational beliefs, or related constructs, cause emotional distress rely on the IBT to operationalize irrational beliefs. Thus the IBT is frequently utilized in the many correlational studies that abound that relate beliefs to emotions and behaviors as well as in the few experimental studies related to this topic. The literature review demonstrates that, although a general trust in the IBT predominates, there are indications that the IBT may not be measuring what it is purported to measure.

It has been noted that correlational studies are limited to conclusions of association and cannot establish causality conclusively. Compounding this limitation are occasional ambiguities and findings using the IBT which conflict with the basic belief mediation theory. One explanation for the various research findings is that the IBT lacks discriminant validity. This explanation can be expanded into the reasonable suspicion that the IBT is a direct measure of emotional distress rather than of

irrational beliefs. Chapter III describes the research methodology employed to question the IBT's validity.

CHAPTER III METHODOLOGY

Evidence from the literature review and a pilot study has indicated that the IBT may be composed of two different types of items. The larger group, IBT-I, may lack validity as a measure of irrationality. This group of items may actually measure a global emotional distress construct. The smaller group, IBT-B, may indeed be a valid measure of irrational beliefs. In this chapter, the methodology utilized to investigate these possibilities is discussed. Specifically, the methodology was designed to study the relation of the IBT to component item subtests identified as IBT-I and IBT-B; to study the relationship of the component subtests to each other; and, to make relative comparisons of each of the three to measures of the distress constructs, trait anxiety (as measured by the State-Trait Anxiety Inventory) and depression (as measured by the Beck Depression Inventory). Additionally, an experimental measure of ability to discriminate rational responses to the IBT, labeled the IBTD with subscales IBTD-I and IBTD-B, was studied in relation to the IBT, STAI-T, and BDI.

Hypotheses

Hypothesis Related to Internal Consistency:

1. The correlation between IBT-I scores and IBT-B scores is significantly lower than the correlation that would be expected by chance between parts of the IBT of this same proportion.

Hypotheses Related to Trait Anxiety:

2. The correlation between IBT-I scores and STAI-T scores is significantly greater than the correlation between IBT-B scores and STAI-T scores.

3. The correlation between IBT-I scores and STAI-T scores is equal to or greater than the correlation between IBT scores and STAI-T scores.

4. The correlation between IBT-I scores and STAI-T scores is equal to or greater than than the correlation between IBT-I scores and IBT-B scores.

Hypotheses Related to Depression:

5. The correlation between IBT-I scores and BDI scores is significantly greater than the correlation between IBT-B scores and BDI scores.

6. The correlation between IBT-I scores and BDI scores is equal to or greater than the correlation between IBT scores and BDI scores.

7. The correlation between IBT-I scores and BDI scores is equal to or greater than than the correlation between IBT-I scores and IBT-B scores.

Hypotheses Related to Discrimination Ability:

8. The correlation between IBTD-B scores and IBT scores is significantly greater than the correlation between IBTD-I scores and IBT scores.
9. The correlation between IBTD-B scores and IBT scores is equal to or greater than the correlation between IBTD scores and IBT scores.
10. The correlation between IBTD-B scores and IBT-B scores is significantly greater than the correlation between IBTD-I scores and IBT-I scores.

Research Design

The design for this study consists of a series of ten correlational studies distributed within four categories of hypotheses relating to (1) internal consistency, (2) trait anxiety, (3) depression, and (4) discrimination ability. The individual studies employ Pearson correlations. Z-transformations of correlation coefficients were employed to test the independence of the correlational pairings in hypotheses one and ten.

In testing hypothesis one, Cronbach's coefficient alpha was used to estimate the internal consistency of the IBT. Then, using Spearman-Brown's prophecy formula so as to compensate for differential test length, internal consistency estimates were derived from the IBT's internal consistency coefficient. The internal consistency estimates for 62-item and 38-item test lengths were averaged by multiplying them by each other and taking the

square root of the product. This coefficient was tested against the Pearson correlation between the IBT-I and the IBT-B.

Hypotheses two through nine were analyzed with a t-test for the significance of the difference between two correlation coefficients for correlated samples. That test is described fully in the results section. The ten hypotheses were subdivided and tested as families against .05 alpha levels. Thus the hypothesis related to internal consistency was tested against the .05 level. Hypotheses two through four, utilizing the STAI-T, were treated as a family of related hypotheses and, therefore, treated as multiple comparisons, with individual alpha levels of .0166 for a family-wise .05 alpha level. The same approach was used for the three hypotheses concerning the BDI and the three concerning the IBTD. In each case the alpha level was divided by the number of comparisons to be performed according to the simplified Bonferroni method. Thus .0166 was the alpha level chosen to test each hypothesis within the three families.

Subjects

Subjects were 145 college students. Eighty-five of these students were solicited from abnormal and personality psychology classes. The remainder were volunteers drawn from first-aid, introductory health, and stress management classes. They received no compensation for their participation. The investigator asked subjects

to respond to the following question by marking their answer sheets: "How familiar are you with Albert Ellis' Rational Emotive Therapy? (1) not at all; (2) have heard of it (3) know the basic idea; (4) know more than just the basic idea; (5) very familiar." The data of subjects who were very familiar with Rational Emotive Therapy (i.e., six subjects) and the data of subjects who failed to comply with the directions (i.e., twelve subjects) were excluded from the study. Thus final analyses were based on 127 subjects. Of these, 91 were female and 36 were male.

Instruments

The Irrational Beliefs Test (IBT; Jones, 1969) is a self-report inventory consisting of 100 items. Subjects rate their level of agreement or disagreement with each item on a five-point scale. The scoring process converts the ratings into numerical values ranging from 1 to 5 for each item. The standard directions for the IBT ask subjects to respond the way they actually feel about the items, not how they think they should feel. An overall irrationality score is computable as well as ten subscale scores corresponding to ten irrational beliefs described originally by Ellis (1962). Higher scores indicate greater concordance with irrational beliefs.

The IBT was constructed of a priori items, intuitively selected by Jones and consensually agreed upon by a panel of judges. Factor analysis was used to establish the final

item content of the ten subscales. Homogeneity reliability coefficients for the subscales ranging from $\underline{r} = .66$ to $\underline{r} = .80$ were reported by Jones. He also found 24-hour test-retest reliability of $\underline{r} = .92$ for the full-scale score. A later study found a two-week test-retest reliability of $\underline{r} = .88$ (Trexler & Karst, 1973). The IBT demonstrated, in a cross validation study (Ray & Bak, 1980), a correlation of $\underline{r} = -.72$ with the Rational Behavior Inventory (RBI; Shorkey & Whiteman, 1977), which is inversely scored.

The IBT with altered instructions (created by the researcher) was used to assess ability to discriminate rational beliefs, thoughts and behaviors. This instrument is referred to as the IBTD. The alternate directions, printed on the test form were as follows:

Instructions: This is an inventory designed to measure the degree of rationality of certain of your beliefs and feelings. The test constructor started with a theory as to what are the most rational beliefs to hold about various things. Your task on this test is to predict to the best of your ability what the TEST CONSTRUCTOR considers to be the MOST REASONABLE and RATIONAL responses to the items. Answers are to be circled to indicate level of either agreement or disagreement. Strongly Agree (A), Agree (a), Neither (n), Disagree (d), and Strongly Disagree

(D). Be sure to mark what you think the TEST CONSTRUCTOR considers to be the MOST REASONABLE and RATIONAL responses, NOT how you actually feel about the items. Try to avoid the neutral or "n" response as much as possible. Select this answer only if you really cannot decide whether agreement or disagreement with a statement is more appropriate. Be sure to respond to each of the items.

The IBT with altered instructions was scored in exactly the same manner as the standard IBT. Whereas higher scores on the standard IBT are indicative of greater irrationality, higher scores on the IBT with altered instructions were taken as indicative of poorer ability to discriminate rationality.

Trait anxiety was measured using the Trait scale of the State-Trait Anxiety Inventory (STAI-T, Form Y; Spielberger, Gorsuch, & Lushene, 1970). This is the most commonly used trait anxiety measure in studies correlating irrational beliefs and trait anxiety. Internal consistency coefficients of $\bar{r} = .88$ and $\bar{r} = .92$ have been found for this scale (Ramanaiah, Franzen, & Schill, 1983). The STAI has been cross validated innumerable times with other anxiety measures. The test consists of 20 items responded to on five-point scales. The standard instructions on the test are to "indicate how you generally feel." Higher scores reflect greater trait anxiety.

Depression was measured using the Beck Depression Inventory (Beck, 1967). This very popular measure of depression has been used in well over 500 reported studies. It has been used in several previous studies correlating irrationality (IBT) with depression. A recent review of applications of the test summarized its validity and reliability information (Steer, Beck, & Garrison, 1986). The BDI is a list of 21 symptoms and attitudes associated with depression. Each item may be rated from 0 to 3 indicating the intensity of that symptom or attitude. The scale may be, and frequently is, self-administered. Studies indicating internal consistency measurements of $r = .86$ have been reported. Test-retest reliability in the .70's is typical but the test is designed to be sensitive to changing magnitudes of depression. Correlations between the BDI and clinician's ratings of depression of $r = .60$ to $r = .90$ are typical. The test has also been shown to correlate with physiological changes consistent with depression. The test is frequently used in validation studies of new depression measures.

Procedure

Subjects, individually and in groups of varying size, were asked to complete the instruments. They received the following instructions:

This is a study designed to investigate the relationship between beliefs and emotions. Your individual data will be massed into group data for

analysis. Interpretations of your individual test results will not be possible. Your test results will be confidential. It is also very important that you proceed through your materials page by page. Do not look ahead at the material to come and do not look back at material you have already completed. Please be aware that items on the last test are the same as those on the first test. However, the instructions for these two tests are very different. When you get to the test labeled "Last Test" read the instructions for that test very carefully. You should be able to complete the packet within an hour to an hour-and-a-half. Please return your completed materials to me. I sincerely thank you for your cooperation.

Subjects were handed a packet containing the IBT first and the IBTD last. This order was established so as to not invalidate the IBT. The order of the STAI-T and the BDI was reversed for half of the subjects.

Rationale and Limitations

This study is concerned with the characteristics, particularly the internal characteristics, of the Irrational Beliefs Test. As has been noted, the validity of this instrument rests primarily upon its correlation with measures of emotional distress (Jones, 1969). This concurrent validity is predicated upon the hypothesized causal relationship between irrationality and emotional

difficulties--a relationship that remain unproven. Final item selection was accomplished by consensual validation of content by judges. Assignment of items to subscales was determined by factor analysis. Thus whether the test is a measure of irrational beliefs per se or some other construct is essentially a matter of opinion. Current and past researchers have expressed differing views on the point of what the test really measures.

The IBT has been subjected to two separate factor analyses (Jones, 1969; Lohr & Bonge, 1982) with similar findings. Neither of these studies nor any of the many correlational studies to date has hinted that there may be two rather distinct item types. Precisely because "irrational belief" is a construct it is open to varying definitions. The Irrational Beliefs Test is a published operationalization of irrational beliefs. Whether the IBT is an appropriate operationalization of that construct is the focus of this research project. It is inappropriate and contraproductive to assume that because the IBT says it measures irrational beliefs and correlates with emotional distress measures, as predicted by theory, that it does, indeed, measure irrational beliefs. Functionally, this has been the tendency of most researchers.

Nearly all of the IBT research, particularly that used to support RET theory, has been correlational. The current project targets the IBT items themselves because

neither the two factor analytic studies nor the many correlational studies performed have been capable of directly questioning the IBT's operationalization of the irrational beliefs construct. RET theory says that irrational beliefs cause emotional distress. That the IBT is correlated with measures of emotional distress is no evidence at all that it truly is a measure of irrational beliefs.

There is no way to incontrovertibly prove that the IBT measures what it purports to measure. At best, it can be shown related to consensually agreed-upon demonstrations of rationality or irrationality. Unfortunately, such agreement is hard to achieve because what constitutes rational or irrational beliefs and behaviors is rather relative. Conversely, it is possible to test whether the IBT is a measure of a singular construct. The current project employs a series of correlational studies because they offer the greatest clarity while remaining parsimonious. Experimental research in this area would offer no improvement in design as the research question in this case is the validity of a construct not the relationship among constructs. The nature of the research question is conducive to measures of association. The question is whether parts of the IBT are associated with each other and the test as a whole.

The major limitation is that at best this line of research can offer conclusions only in a range from

failure to find two distinct item types to unequivocal evidence of two distinct item types. Thus this study is a test of whether the IBT measures one major construct (with ten subordinate constructs), as is claimed, or more than one construct. The study cannot verify that only one major construct is operationalized in the test but it can supply an opportunity for two major constructs to become apparent. In the end what the items of each construct, if there is more than one, really measure will remain mostly a matter of opinion since constructs are created by arbitrary definitions.

CHAPTER IV RESULTS

The purpose of this study was to test the discriminant validity of the Irrational Beliefs Test in relation to its item content. The IBT is purported to be a measure and operationalization of one distinct factor, irrationality. This study investigated the possibility that the IBT may actually be composed of two distinct types of items which measure essentially different constructs. To accomplish this, the IBT items were differentiated into two subtests by means of a single criterion, the presence or absence of "I" and "me" personal pronouns. Those 62 items containing "I" or "me" were assigned to a subtest labeled, "IBT-I". The remaining 38 items comprised a subtest labeled, "IBT-B". A separate IBT, called the "IBTD," with altered instructions was also utilized. The IBTD's new instructions asked subjects to guess what the most rational responses to items were rather than to answer according to their personal feelings. Thus the IBTD was conceptualized to be a measure of ability to discriminate rationality. Like the IBT, the IBTD was subdifferentiated by the I-me criterion into two subtests, the IBTD-I and the IBTD-B.

Ten hypotheses were formulated which would allow for evidence to emerge, in the form of differential correlations, testing the supposition that the IBT is composed of the two distinct item-types theorized. The complete IBT and IBTD tests were then administered to 145 college students along with two measures of emotional distress, the Trait subtest of the State-Trait Anxiety Test (STAI-T) and the Beck Depression Inventory (BDI). The data of 18 students were excluded from analysis due to either their close familiarity with Rational Emotive Therapy or their failure to follow directions. Analyses were therefore based upon 127 subjects. As described in the design section, the hypotheses were grouped into and treated as families for multiple comparison purposes. The .05 alpha level was used to test hypothesis one. The Bonferroni method of dividing the alpha level by the number of comparisons was utilized within each of the three families. Thus for each of the hypothesis in the STAI-T, BDI, and IBTD groups, a .0166 alpha level was used as the criterion for rejection of the null hypothesis. This chapter reports the results of the data analyses testing the ten hypotheses.

General Findings

Several findings and considerations are of relevance before reporting the tests of the ten hypotheses. The mean of the IBT scores for the current sample was 292, which is very consistent with IBT means reported in other

research. For instance, Jones' original heterogeneous sample of 427 subjects yielded a mean of 291.54 (Test Systems International, 1985). The means on the STAI-T in this study were 41.76 for females and 38.31 for males, reasonably close to the means of the normative sample of 855 students (i.e., 38.76 and 36.47, respectively; Spielberger, 1983). Also, the mean of the BDI scores was 6.91, which falls in the normal range of scores on that instrument (Beck, 1978).

ANOVAs were computed for sex and order effects. Alpha levels of .05 were used to test the ANOVAs. Order refers here only to the relative order of the STAI-T and the BDI. The IBT was always administered first and the IBTD last. The negative or no-effect findings are (1) with the IBT as the dependent variable there was no effect for sex ($F(1,125) = 2.59, p < .110$); (2) with the IBTD as the dependent variable there was no effect for sex ($F(1,125) = 2.97, p < .087$); (3) with the STAI as the dependent variable there was no effect for sex ($F(1,125) = 3.77, p < .054$); (4) with the IBT as the dependent variable there was no effect for order ($F(1,125) = 0.92, p < .340$); (5) with the IBTD as the dependent variable there was no effect for order ($F(1,125) = 0.09, p < .767$); (6) with the STAI as the dependent variable there was no effect for order ($F(1,125) = 0.03, p < .865$); (7) with the BDI as the dependent variable there was no effect for order ($F(1,125) = 0.25, p < .621$). Thus the only effect

noted was for sex with the BDI ($F(1,125) = 4.09$, $p < .045$). Scheffe's test for the BDI variable revealed a significantly higher mean depression score for females than for males ($M_f = 7.582$, $M_m = 5.222$).

Results by Hypotheses

Hypothesis Related to Internal Consistency.

The first hypothesis stated that the correlation between IBT-I scores and IBT-B scores is significantly lower than would be expected by chance between parts of the IBT of this same proportion. The correlation between proportionate parts of the IBT was conceptualized as equivalent to a coefficient alpha internal consistency reliability coefficient (Kaplan & Saccuzzo, 1982). That coefficient was an average of the estimated reliabilities of 62-item and 38-item IBTs. These estimated reliabilities were, in turn, obtained by applying the Spearman-Brown Prophecy Formula (Kaplan & Saccuzzo, 1982) to the obtained coefficient alpha reliability of the full IBT. The coefficient alpha for the full IBT was $\underline{r} = .854$, which is comparable to alphas of $\underline{r} = .895$ (Jones, 1968) and $\underline{r} = .873$ (Lohr & Bonge, 1982) previously obtained. Estimated reliabilities of $\underline{r} = .770$ for a 62-item IBT and $\underline{r} = .690$ for a 38-item IBT were calculated via the prophecy formula. An average reliability coefficient, $\underline{r} = .729$, was calculated by multiplying the 62-item and 38-item reliabilities by each other and taking the square root of the product.

This average internal consistency coefficient was then compared to the obtained correlation between the IBT-I and the IBT-B using a confidence interval for correlations (Agresti & Agresti, 1979). This approach entailed using a logarithmic z -transformation of the average internal consistency reliability coefficient for which there is a normal sampling distribution, calculation of a confidence interval based on the transformation, and conversion of the transformed confidence interval back into correlational units. However, because the hypothesis predicted directionality, such that the obtained correlation is less than expected by chance, only the lower tail of the confidence interval was calculated.

It was found that .601 was the bottom limit of a 99% confidence interval for the expected coefficient. Values below .601 would be expected to have a probability of less than .005 of occurring (much lower than the .05 alpha rejection level). The actual correlation between the IBT-I and the IBT-B was $r = .368$, and thus fell well within the alpha criterion area requiring rejection of the null hypothesis. Reciprocally stated, the result was failure to reject the alternative hypothesis that the correlation between the IBT-I and the IBT-B is lower than than would be expected by chance if, in fact, this distinction in items were unjustified.

Hypotheses Related to Trait Anxiety.

The second hypothesis stated that the correlation between IBT-I scores and STAI-T scores is significantly greater than the correlation between IBT-B scores and STAI-T scores. This and the following seven hypotheses (i.e., hypotheses 2-9) were tested using a t -test of differences between two correlation coefficients for correlated samples (Ferguson, 1959). The formula for this test statistic is

$$t = \frac{(r_{12} - r_{13}) \sqrt{(N - 3) (1 + r_{23})}}{\sqrt{2(1 - r_{12}^2 - r_{13}^2 - r_{23}^2 + 2r_{12}r_{13}r_{23})}}.$$

In this formula r_{12} is the correlation between tests 1 and 2, r_{13} is the correlation between tests 1 and 3, r_{23} is the correlation between tests 2 and 3, and N is the total sample size. Thus the relationship between two sets of correlations can be tested based upon knowledge of the associations among the three involved measures.

The correlation between the IBT-I and the STAI-T was $r = .624$, yet the correlation between the IBT-B and the STAI-T was only $r = .299$. The t -test of differences yielded a value of $t = 4.138$ ($p < .0001$, one-tailed), leading to failure to reject the hypothesis that the IBT-I is more highly correlated with the STAI-T than is the IBT-B.

The third hypothesis stated that the correlation between IBT-I scores and STAI-T scores is equal to or greater than the correlation between IBT scores and STAI-T

scores. This hypothesis was intended to demonstrate that the IBT-I is as efficient at predicting trait anxiety scores as is the full IBT. Again, the correlation between the IBT-I and the STAI-T was $r = .624$. The correlation between the full IBT and the STAI-T was $r = .607$. The t -test value of the difference was $t = 0.641$, $p < .261$, one-tailed), resulting in failure to reject the hypothesis.

The fourth hypothesis was that the correlation between IBT-I scores and STAI-T scores is equal to or greater than the correlation between IBT-I scores and IBT-B scores. This was meant to show that the IBT-I lacks discriminant validity. Logically, a measure of one construct should be more highly related to another measure of the same construct than either is to a different construct. If the IBT-I items and the IBT-B items are both measures of irrationality, as claimed, then they should be more highly related to each other than either is to a measure of trait anxiety. The IBT-I correlated $r = .624$ with the STAI-T and only $r = .368$ with the IBT-B resulting in $t = 3.176$ ($p < .001$, one-tailed). Therefore, the hypothesis was not rejected. Thus the correlation between the IBT-I and the IBT-B was lower than the IBT-I's correlation with the STAI-T.

Hypotheses Related to Depression.

The fifth hypothesis was that the correlation between IBT-I scores and BDI scores is significantly greater than

the correlation between IBT-B scores and BDI scores. The correlation obtained between IBT-I scores and BDI scores was $r = .480$, compared to a correlation of $r = .290$ between IBT-B scores and BDI scores. The t -test resulted in $t = 2.166$ ($p < .0154$, one-tailed). Thus the alternative hypothesis that that IBT-I scores are more highly correlated than IBT-B scores with BDI scores was not rejected.

The sixth hypothesis was that the correlation between IBT-I scores and BDI scores is equal to or greater than the correlation between IBT scores and BDI scores. This hypothesis, analogous to the third hypothesis, was intended to show that the IBT-I is as relatively efficient as the full IBT in predicting BDI scores. A correlation of $r = .480$ was found between the IBT-I and the BDI. A similar correlation of $r = .491$ was found between the IBT and the BDI. The t -test value was $t = -0.372$ ($p < .356$, one-tailed), insufficient to reject this hypothesis. Therefore, the difference between the IBT-I and IBT's relationships to the BDI was not significant.

The seventh hypothesis stated that the correlation between IBT-I scores and BDI scores is equal to or greater than the correlation between IBT-I scores and IBT-B scores. This, like hypothesis four, was meant as a test of the IBT-I's discriminant validity. The result was a correlation of $r = .480$ between the IBT-I and the BDI. Again, a correlation of $r = .368$ was found between the

IBT-I and the BDI. The t -test result was $t = 1.240$ ($p < .108$), one-tailed). Thus the difference between the correlational values was insufficient to reject this hypothesis. This is consistent with the finding from hypothesis four that the IBT-I failed to demonstrate discriminant validity. Assuming the IBT-B to be a measure of irrationality, the IBT-I should have correlated more highly with it than with the BDI. It did not.

Hypotheses Related to Discrimination Ability.

The eighth hypothesis was that the correlation between IBTD-B scores (i.e., ability to discriminate rational responses as determined using the "B" items only) and IBT scores is significantly greater than the correlation between IBTD-I scores and IBT scores. Neither of the actual correlations was significantly non-zero ($r = .090$ and $r = .050$, respectively, and the t -test value of $t = .702$ ($p < .236$, one-tailed) was also non-significant. The hypothesis consequently was rejected.

Hypothesis nine was that the correlation between IBTD-B scores and IBT scores is equal to or greater than the correlation between IBTD scores and IBT scores. As in the previous hypothesis the obtained correlations ($r = .090$ and $r = .066$, respectively) were not significantly non-zero and the t -test value of $t = .619$ ($p < .268$, one-tailed) failed to reach significance. The indication was not to reject the hypothesis.

The final hypothesis was that the correlation between IBTD-B scores and IBT-B scores is significantly greater than the correlation between IBTD-I scores and IBT-I scores. This was meant to show that the relationship between poorer discrimination ability and irrationality is stronger when measured using "B" items than when measured using "I" items. A strong relationship between poorer discrimination ability and irrationality is consistent with Rational Emotive theory. Thus a significantly higher correlation between the "B" tests than between the "I" tests may suggest that the IBT-B is the more likely, of the IBT-I and IBT-B, to be a valid measure of irrationality, if indeed either is valid.

The actual correlations were $r = .285$ for the "B" tests and $r = -.028$ for the "I" tests. This was a comparison among four tests rather than among three and thus there is no measure shared between correlations. The t -test, therefore, was not appropriate for the present case and, instead, a confidence interval based on z -transformations as described under the first hypothesis was used. It was found that a 96.6% confidence interval for the correlation between the IBTD-I and the IBT-I would have an upper value of $r = .164$. Because this was a one-tailed prediction, there is less than a $p < .0166$ probability that the relationship between the IBTD-B and the IBT-B is the same as that between the IBTD-I and the IBT-I. Actually, the obtained "B" tests correlation of

$\underline{r} = .285$ is well beyond the limit of the confidence interval for the "I" test's correlation. Moreover a 96.6% confidence interval for the "B" test's correlation of $\underline{r} = .285$ has a value of $\underline{r} = .129$ for the lower limit. Therefore, neither correlation falls within the other's confidence interval. Thus the correlation between the "B" tests was significantly greater than the correlation between the "I" tests. Additionally, it was noted that the "I" test correlation was functionally zero ($p = .759$). The "B" test correlation, however, carried only a $p = .001$ probability of being zero.

Post Hoc Analyses.

Hypotheses three predicted that the correlation between IBT-I scores and STAI-T scores is equal to or greater than the correlation between full IBT scores and STAI-T scores. This hypothesis was mirrored using the BDI in hypothesis six. The result in each case was failure to reject the hypothesis. These hypotheses were meant to show the influence of the IBT-I items within the IBT. After the initial analyses it was felt that the relative contribution of the IBT-I items could be further clarified by calculating partial correlation coefficients for the the IBT-B items. These coefficients show the correlations between the IBT-B and the STAI-T and between the IBT-B and the BDI controlling for the effects of the IBT-I. Thus they reveal how much variance in STAI-T scores and BDI scores, respectively, is accounted for

solely by the IBT-B items. The same statistical results would be obtained for an analysis of the partial effect of the full IBT since the full IBT is the sum of the IBT-I and the IBT-B items.

The partial correlation between the STAI-T and the IBT-B was $r = .096$ ($t = 1.072$, one-tailed $p < .071$) Thus, controlling for the correlation between the STAI-T and the IBT-I, the IBT-B was not significantly correlated with the STAI-T. This indicates that the amount of STAI-T variance solely accounted for by the IBT-B was not significantly non-zero. The partial correlation between the BDI and the IBT-B was $r = .139$ ($t = 1.57$, $p < .0291$) and thus was significant at the .05 level. This correlation was not be significant at the .016 level needed for multiple comparisons, however. Since this analysis is clarification of a hypothesis treated as a multiple comparison it is necessary to conclude that the IBT-B failed again to make a solo contribution to an account of STAI-T variance above and beyond that accounted for by the IBT-I.

CHAPTER V DISCUSSION

The primary objective of this study was to investigate the discriminant validity of the Irrational Beliefs Test in relationship to its item content. Researchers have generally assumed the test to be an adequate and legitimate measure and operationalization of Albert Ellis's "irrational beliefs" construct. The IBT purports to produce a global measure of irrationality which can be further differentiated into ten factors representing Ellis's list of the ten most common irrational beliefs. Over seventy research articles have been published and many master's and doctoral theses have been produced studying the relationship of this operationalization of irrationality to various behaviors, personality traits and troublesome emotional states. Despite the appearance of over half-a-dozen articles seriously questioning, and in some cases presenting cogent evidence against, the validity of the IBT, it has enjoyed considerable popularity.

Use of the test in recent years has accelerated. Currently there are vigorous attempts to relate IBT subscale patterns to various personality traits and distressful maladies. This attempt is analogous to the in-depth subscale analysis that the Minnesota Multiphasic Personality Inventory has received, although not of the

same magnitude. In the presence of conflicting opinions as to its general validity, and before IBT subscale research advances further, it is imperative that the IBT's basic validity as an operationalization of irrationality be further scrutinized. This dissertation has been an attempt to do so.

The basic premise of this study has been that there is considerable evidence that the IBT is not a pure and reasonable measure of irrationality as a singular construct. Rather, there have been indications that the IBT may correlate highly with measures of emotional distress because it actually is another direct self-report measure of emotional distress. Many of the IBT's items bare a strong resemblance to items on popular emotional distress measures. The items most resembling distress items are the ones containing the "I" and "me" personal pronouns. These were labeled "IBT-I" items for the purposes of this dissertation. The other items, "IBT-B," contain no such personal reference and do, in fact, have considerable face validity as belief items. An item distinction has not previously appeared in the IBT literature. The essential assumption of this dissertation is that IBT-B items may, in fact, measure irrationality, but that much of the test measures emotional distress directly via the IBT-I items.

Ten hypotheses were developed and tested so as to judge the appropriateness of this differentiation of

items and so as to indicate the constructs which each type of item might measure. For this investigation the IBT, the discrimination-ability version of the IBT (IBTD), the State-Trait Anxiety Test-Trait Form, and the Beck Depression Inventory were administered to college students. Intercorrelations among these measures and the derivatives (i.e., IBT-I, IBT-B, IBTD-I, and IBTD-B) were calculated using Pearson correlation procedures. ANOVAs were applied to the data to test for sex and test-order effects. Internal consistency coefficients were also calculated. The main tests were for differences among the correlations. This chapter discusses the results of testing the hypotheses.

It was noted in the results section that the means for each of the four tests were consistent with those obtained previously in investigations with similar samples. Notably, the IBT mean was almost precisely that obtained in Jones' original IBT dissertation study. Therefore, it is likely that the current sample was a reasonable one upon which to test the ten hypotheses. There was no effect for order of the STAI-T and the BDI. It was not possible to vary the order of tests in any other combinations because the IBTD needed to be given as remotely from the IBT as possible to minimize contamination, and because the IBTD would surely have contaminated IBT scores if it had been administered first. It can be safely assumed that IBT scores remained

uncontaminated. It is also doubtful that the IBT had any significant impact on STAI-T and BDI responding.

The hypotheses were stated in alternative form for maximum clarity. For analysis they were treated as families of hypotheses. Thus hypotheses two through ten were divided into three families of three hypotheses each and the simple Bonferonni method of dividing the alpha level by number of comparisons was employed to assure simultaneous confidence levels of .05 for each family. Of the ten, only one alternative hypotheses was rejected.

Hypothesis one stated that the correlation between IBT-I scores and IBT-B scores is significantly lower than the correlation that would be expected by chance between parts of the IBT of the same proportion. An average internal consistency calculation based on coefficient alpha and the Spearman-Brown Prophecy Formula was assumed to give a description of the correlation that would be expected by chance. The result was that the correlation between the IBT-I and the IBT-B ($r = .368$) was only half the value expected value ($r = .729$), a significant difference. This finding demonstrates the presence of an item dichotomy previously unreported despite the original and recent factor analyses.

The next three hypotheses employed interrelationships with the STAI-T. None of these hypotheses were rejected. Hypothesis two stated that the correlation between IBT-I scores and STAI-T scores is significantly greater than

the correlation between IBT-B scores and STAI-T scores. The actual correlation between IBT-I scores and trait anxiety scores ($r = .624$) was more than double that between IBT-B scores and trait anxiety scores ($r = .299$), a highly significant difference quite unlikely by chance ($p < .005$). In the test of hypothesis three, the correlation between IBT-I scores and STAI-T scores ($r = .624$) was found to not be significantly lower than that between full IBT scores and STAI-T scores. Thus the significance of the finding from hypothesis three was that the IBT-I scores were as successful as total IBT scores at predicting trait anxiety scores.

Hypothesis four predicted that the IBT-I would be more highly correlated with the STAI-T (i.e., an anxiety measure) than it is with the IBT-B, supposedly an equivalent and indistinguishable measure of irrationality. This was an important test of the IBT-I's discriminant validity. A prior discriminant validity study (Smith & Zurawski, 1983) found the IBT to be more highly correlated with the STAI than it was with a separate test of irrationality, the Rational Behavior Inventory. They concluded that the IBT, in correlating more highly with an anxiety measure than with an irrationality measure, lacked discriminant validity. Analogously, if the IBT-B items measure irrationality, as purported, then the IBT-I items constitute a subtest lacking in discriminant validity since the correlation

between IBT-I scores and STAI-T scores ($r = .624$) was significantly greater than the correlation between IBT-I scores and IBT-B scores ($r = .368$).

Hypotheses five, six and seven, related to the depression measure, mirror the three hypotheses related to the trait anxiety measure. The correlation between IBT-I scores and BDI scores ($r = .480$) was higher than that between IBT-B scores and BDI scores, demonstrating the item dichotomy and the association of the IBT-I scores with an emotional distress measure. The results from tests of hypotheses six and seven were also consistent with the results testing the STAI-T hypotheses. Thus the IBT-I did predict BDI scores ($r = .480$) comparably to full IBT scores ($r = .491$). Also, IBT-I scores were more highly correlated with BDI scores ($r = .480$) than they were with IBT-B scores ($r = .368$), thus further demonstrating the IBT-I's lack of discriminant validity, if IBT-B items are considered irrationality measures.

The last three hypotheses concerned discrimination ability. Hypothesis eight predicted that the ability to predict rational responses based only on IBT-B items would be more highly related to IBT scores than to discrimination ability based on IBT-I items. As it turned out, all three measures of ability to discriminate rationality were about equally unrelated to full IBT scores. The correlations with the IBT were all

non-significant. Also the correlation between IBTD-B scores and IBT scores ($\underline{r} = .090$) was not significantly greater than the correlation between IBTD-I scores and IBT scores ($\underline{r} = .050$). Hypothesis nine, however, predicted that the correlation between IBTD-B scores and IBT scores would be equal to or greater than the correlation between full IBTD scores and IBT scores. Consistent with the prediction, the former correlation ($\underline{r} = .090$) was functionally equivalent to the latter ($\underline{r} = .060$).

These latter two hypotheses do not demonstrate differential results for IBTD-I items and IBTD-B items. However, they support a previous finding (Gitlin & Tucker, 1987) that ability to discriminate rational responses to IBT items is not related to actual IBT-measured rationality. The basic Rational Emotive Therapy strategy emphasizes teaching clients to discriminate rational from irrational beliefs. This procedure implicitly assumes that irrational clients either lack the ability or simply fail to discriminate rational from irrational beliefs. The finding of no relationship between discrimination ability and irrationality demonstrates a discrepancy between Rational Emotive theory, the IBT, and the IBTD.

One possible reason for the noted discrepancy might be that the Rational Emotive theory is essentially correct but that the IBT fails to measure irrationality. Another possibility is that the IBTD is not an

appropriate measure of discrimination ability. A third possibility is that many "irrational" persons are quite able to differentiate rational from irrational beliefs but for one reason or another do not apply their knowledge. Clarifying the discrepancy between irrationality and ability to discriminate rationality was the focus of the last hypothesis.

The tenth hypothesis exposed a very subtle but critical difference between the "I/me" items and the "B" items. As just seen, even though hypotheses eight and nine failed to demonstrate a difference between these two types of items, they did point to a discrepancy between irrationality and ability to discriminate rationality. It was noted that the correlation between IBTD-B scores and the full IBT was $r = .090$ ($p = .313$) and thus not significant. The correlation between IBTD-I scores and full IBT scores was $r = .050$ ($p = .578$), and also not significant.

Hypothesis ten further examined the discrimination issue by stating that the correlation between IBTD-B scores and IBT-B scores is equal to or greater than the correlation between IBTD-I scores and IBT-I scores. The effect of this hypothesis was to view the relationship between discrimination ability and irrationality free from the contamination that could be hiding the relationship if, indeed, the "I/me" items present an overshadowingly

different relationship with discrimination ability from that of the "B" items.

The result was that the correlation between IBTD-I scores and IBT-I scores was $r = -0.028$ ($p = .759$), not significant, yet the the correlation between IBTD-B scores and IBT-B measured irrationality was significant ($r = .285$, $p = .001$). This is a demonstration of a relationship between irrationality and poor discrimination which is consistent with Rational Emotive theory and therapy practices but which failed to be apparent in hypothesis eight where the IBTD-B and IBTD-I were related to the full IBTD. The test of the difference between the correlations was significant. A 99% confidence interval for the correlation between IBTD-I scores and IBT-I scores is bounded by $r = .201$ on the upper side. The correlation between IBTD-B scores and IBT-B scores exceeded that boundry.

What may be concluded from the three hypotheses regarding discrimination ability is that there is a difference between "I/me" items and "B" items. More importantly, the finding of a relationship between the "B" tests but not the "I" tests helps clarify what the two item-types might differentially measure. The "B" tests relationship is consistent with Rational Emotive theory and thus lends support to the contention that the IBT-B items measure irrationality and that the IBTD-B items measure ability to discriminate rationality. The

failure of the IBT-I items to correlate with the IBTD-I test weakens the argument that IBT-I items really measure irrationality. Coupling this with the finding that they correlate highly with the emotional distress measures indicates a strong possibility that the IBT-I items really constitute a direct measure of emotional distress.

The results from testing the ten hypotheses are very consistent with those of the pilot study. In that study there was a differential correlation with the STAI-T of $\underline{r} = .57$ for the IBT-I and of $\underline{r} = .29$ for the IBT-B. The IBT-I and the full IBT were equally good predictors of trait anxiety. The IBT-I lacked discriminant validity due to its higher correlation with trait anxiety ($\underline{r} = .57$) than with the IBT-B items ($\underline{r} = .35$). In that study the IBTD-I discrimination ability items were unrelated to IBT-I measured irrationality ($\underline{r} = .08$) but IBTD-B discrimination ability items were quite well correlated with IBT-I measured irrationality ($\underline{r} = .52$).

The post hoc analyses indicated that the IBT-I items account for the significant proportion of variance in both STAI-T and BDI scores. The partial correlation coefficients for the the IBT-B in relationship to both the STAI-T and the BDI were nonsignificant. Controlling for the correlation between the IBT-I and the STAI, the IBT-B added no significant account of variance in STAI-T scores. The same was true in the case of BDI scores. Thus the

amount of variance accounted for uniquely by the IBT-B was nonsignificant.

Summary

This study has demonstrated strong evidence of an item dichotomy within the Irrational Beliefs Test. Hypothesis one demonstrated that the two subtests, IBT-I and IBT-B, were much less related than would be expected by chance. Hypothesis two showed a higher correlation between the IBT-I and the STAI-T than between the IBT-B and the STAI-T. The analogous hypothesis five also demonstrated this differential subscale effect. Hypothesis four showed that the IBT-I correlated more highly with an emotional distress measure than with the IBT-B subset of the irrationality measure. This was corroborated in hypothesis seven where again the IBT-I failed to demonstrate discriminant validity.

The hypothesis ten finding of a greater correlation among the "B" tests than among the "I/me" tests (which were not related at all) caps the evidence of item differences. It lends support to the contention that IBT-B items measure irrationality. Yet, in combination with the discriminant validity findings from hypotheses four and seven, the evidence is increased that the IBT-I items really measure emotional distress. Hypotheses three and six demonstrate the overshadowing influence of the IBT-I items. In both cases the IBT-I test was as effective as the full IBT in predicting

emotional distress. In fact, the post hoc analyses indicated that the IBT-B items failed to make a unique contribution to the explanation of STAI-T and BDI variances.

The weight of the current findings is thus decidedly in favor of an item dichotomy within the IBT. Further, this item dichotomy gives strong indications that the IBT measures two constructs simultaneously, irrationality via IBT-B items and emotional distress via IBT-I items.

Recommendations

This study, by multiple means, has demonstrated an item dichotomy within the Irrational Beliefs Test. Over the years since the IBT was devised there have been sporadic but continuing suspicions that the IBT may not be a valid operationalization of Albert Ellis's irrational beliefs construct. Almost a decade prior to the current study, researchers pointed to the possibility that "the IBT predicts emotional upset, not because it measures the kind of beliefs that predispose an individual towards emotional upset, but because many of the items on the IBT measure an individual's self-reports of upset per se" (Zemore & Elgaard, 1979, p. 249). Apparently, that charge inflicted little damage on the confidence of the majority of IBT researchers as evidenced by the proliferation of IBT research, particularly IBT subscale pattern studies. Essentially the same charges reemerge, however.

Current investigators have pointed to the IBT's lack of discriminant validity when contrasted with the Rational Behavior Inventory and the STAI-T (Smith & Zurawski, 1983). Those investigators reiterated Zemore and Elgaard's observation by noting, "many items on this test include references to typical emotional responses, which potentially increases artificially the relationship between this measure of beliefs and measures of emotional distress" (Smith & Zurawski, 1983, p. 978).

The point is that the IBT continues to be used as the primary operationalization of irrational beliefs despite the intermittent charges of its non-validity. One consideration is changing the the focus away from global indices of irrationality. For example, one research team noted that "none of the [IBT] subscales approach the level of reliability necessary for clinical decision making" (Lohr & Bonge, 1982, p. 229). It proceeded to conclude "that the IBT is only a first step in assessing cognitive processes" (p. 229) and that what is needed is more behavioral situation-specific measures. Smith, Houston, and Zurawski have gone so far as to questioned the "necessity of postulating the existence of irrational beliefs in accounts of the arousal of emotional distress" (1984, p. 190). They, like Lohr and Bonge, also point to the possible greater utility of using more parsimonious and situation-specific measures. For example, the Fear of Negative Evaluation

scale (Watson & Friend, 1969), might be an appropriate alternative to the Demand for Approval subscale of the IBT.

One central purpose of the IBT, however, has ostensibly been to enable global evaluations of irrationality. Thus, hypothetically, a researcher or psychotherapist might administer the IBT as a general screening and diagnostic device analogously to the usage of the MMPI by those of the psychodynamic persuasion. Abandoning the concept of a comprehensive irrationality measure is a solution that defeats the purpose. It would deprive Rational Emotive therapists and theoreticians of an important operationalization of irrationality needed to contribute to the evidence regarding the validity of the Rational Emotive approach. Most of these researchers would probably agree that if a comprehensive irrationality measure could be evolved that is both reliable and valid then so much the better.

The research reported in this dissertation could serve the cause of better operationalizing irrationality. The distinction between IBT-I and IBT-B items may be merged with other ongoing and parallel attempts to explain the IBT's lack of discriminant validity. Consider one of the most recent studies, for instance. The most contemporary research reported in the literature indicates that the relationship between irrational beliefs and emotional distress may be related to "the

fact that both sets of measures assess the more general dimension of negative affectivity" (Zurawski & Smith, 1987, p. 227). That research employed partial correlation analyses which enabled the control of negative affectivity. Controlling for negative affectivity eliminated the overall significance of the relationship between the IBT and the Beck Depression Inventory.

Importantly, and apropos to the current study, two subscales were cited by Zurawski and Smith as retaining a significant correlation between beliefs and depression despite the removal of the negative affectivity influence. They were both IBT-B scales. That is, they consisted predominantly of items without the "I/me" referents. The Zurawski and Smith (1987) study employed multiple measures of several important and interrelated variables. If that study were replicated using the current item distinction rather than the traditional subscales, then much progress might be made toward understanding, and possibly decontaminating, the IBT.

A global recommendation for the immediate present is for researchers to temporarily redirect their energies away from further attempts to develop subscale profiles corresponding to various forms of emotional distress and toward the goal of refining a valid irrationality measure out of the existent ones. Thus it is recommended that

researchers interested in this topic return to work systematically toward a sounder operational foundation for irrationality studies lest, like much psychological theory, the irrationality construct lose contact with reality and become irrational itself.

APPENDIX A
IBT CORRELATION LITERATURE SUMMARY

Study/Variable	IBT Subscales										Total
	1	2	3	4	5	6	7	8	9	10	
Trexler & Karst, 1973											
PRCS Speech Anx.	1	2		4		6	7				.487
LaPointe & Crandell, 1980											
BDI Depress.		2		4	5		7				p<.05
Nelson, 1977											
BDI Depress.		2		4		6			9		.53
Schill, Adams, & Ramanaiah, 1982											
"Poor coping"				4		6	7		9		p<.05
Goldfried & Sobocinski, 1975											
SAD Social anx.	1	2		4		6					.51
FNE Social anx.	1	2		4		6					.66
PRCS Speech	1	2	3	4	5	6	7				.54
Lohr & Rea, 1981											
PRCS Speech		1									NS
Forman & Forman 1979 Psy. Needs											
ACL	1	2		4			7		9		.624
Lohr & Bonge 1981											
STAI-T											.49
Smith & Zurawski 1983											
STAI-T											.676
TAI Test											.514
FNE Social											.574

Smith, Houston, & Zurawski, 1984 FNE Social									.50
Evans & Picano, 1984 MMPI Maladjust.	2				6	7		9	
Zwemer & Deffenbacher, 1984 AI Anger	2	3	4		6				.54
STAI-T ANX.	2		4		6	7			.70
Davidson, Feldman, Osborn, 1984 SAD Social									.45
FNE Social									.79
Lohr & Bonge, 1982 CSES Assert.	1	2				7			-.31
Gitlin & Tucker, 1987 STAI-T									.65
Heppner, Reeder, & Larson, 1983 PSI Prob. Solv.				4		6	7		Sig
Hazaleus & Deffenbacher, 1985 AI Anger			3			6			
Lohr, Nix, Dunbar, & Mosesso, 1984 Assert.									NS
Roleplay Assert	1						8		
Smith, Houston, & Zurawski, 1983 Framingham Type A									Sig
Thurman, 1983 Type A Tx Reduct.	2				6			10	Sig
Daly & Burton, 1983 J-F FIS s-esteem	1	2		4		7			Sig

Smith & Jana,
1982
Self-accept
Mooney PCL #probs

Sig
Sig

Smith & Brehm,
1981

Type A males	2			10
Type A females		4	6	

Lohr & Bonge,
1980

Type A	NS
--------	----

Sutton-Simon,
& Goldfried, 1979
SAD Social

Sig

Martin, Dolliver,
& Irvin, 1977

Cash, 1984	2	4	6	.35
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BDI

CSES	1	2	6	7	9	.43
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Subscale	1	2	3	4	5	6	7	8	9	10
----------	---	---	---	---	---	---	---	---	---	----

# Mentions	10	16	3	14	2	15	11	1	5	2
------------	----	----	---	----	---	----	----	---	---	---

"I" 10 10 3 9 1 10 7 8 3 1

Scale type	I	I	B	I	B	I	I	I	B	B
------------	---	---	---	---	---	---	---	---	---	---

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# Mentions      Hi  Hi  Lo  Hi  Lo  Hi  Hi  Lo  Lo  Lo
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MATCH HYPO Y Y Y Y Y Y Y N Y Y

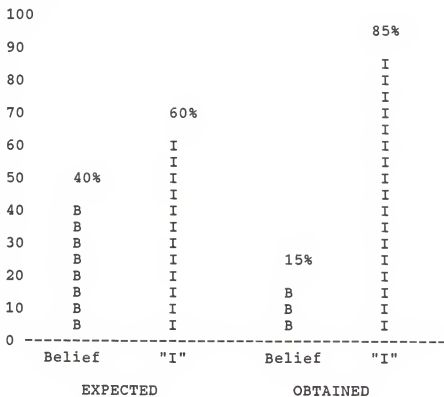
APPENDIX B
IBT SUBSCALE MENTIONS IN THE LITERATURE

GRAPH ONE

Number of Mentions									
16								2	
15								2	6
14	BELIEF	!		"I"	4			2	6
13	SCALES	!		SCALES	4			2	6
12		!			4			2	6
11		!		7	4			2	6
10		!		7	4	1	2	6	
9		!		7	4	1	2	6	
8		!		7	4	1	2	6	
7		!		7	4	1	2	6	
6		!		7	4	1	2	6	
5		9	!	7	4	1	2	6	
4		9	!	7	4	1	2	6	
3		3 9	!	7	4	1	2	6	
2	5 10	3 9	!	7	4	1	2	6	
1	5 10	3 9	!	7	8	4	1	2	6
0	-----								
% "I"	10%	30%	50%	70%	80%	90%	100%		
Subscale #	5,10	3,9	!	7	8	4	1,2,6		

GRAPH TWO

% Mentions



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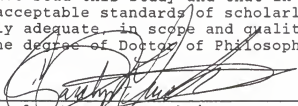
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BIOGRAPHICAL SKETCH

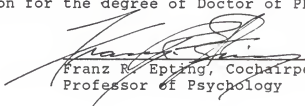
David E. Gitlin was born in the United States in 1952. He received a B.S. degree in psychology from Western Carolina University and an M.A. degree from Appalachian State University in agency counseling before beginning work toward the Ph.D. degree in counseling psychology at the University of Florida in 1984. He anticipates completing his predoctoral internship at the University of Tennessee's student counseling services center.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.




Carolyn M. Tucker, Chairperson
Associate Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



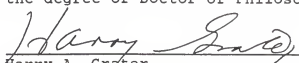
Franz R. Epting, Cochairperson
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



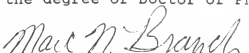
Jeffery P. Braden
Assistant Professor of Counselor
Education

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Harry A. Grater
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.



Marc N. Branch
Professor of Psychology

This dissertation was submitted to the Graduate Faculty of the Department of Psychology in the College of Liberal Arts and Sciences and to the Graduate School and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

August, 1988

Dean, Graduate School